B448. UPPER PLEISTOCENE - HOLOCENE ACTIVITY OF THE CARRASCOY FAULT (MURCIA, SE SPAIN): PRELIMINARY RESULTS FROM PALEOSISMOLOGICAL RESEARCH

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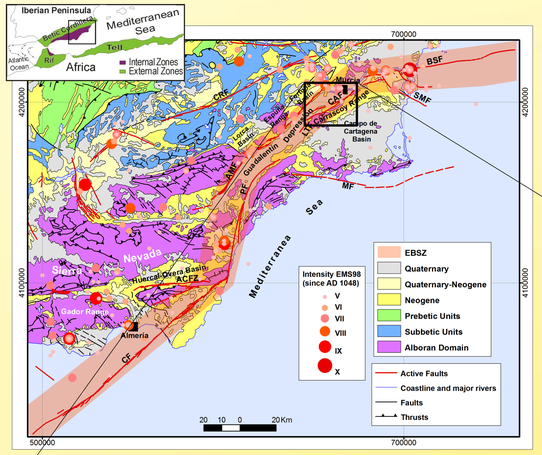
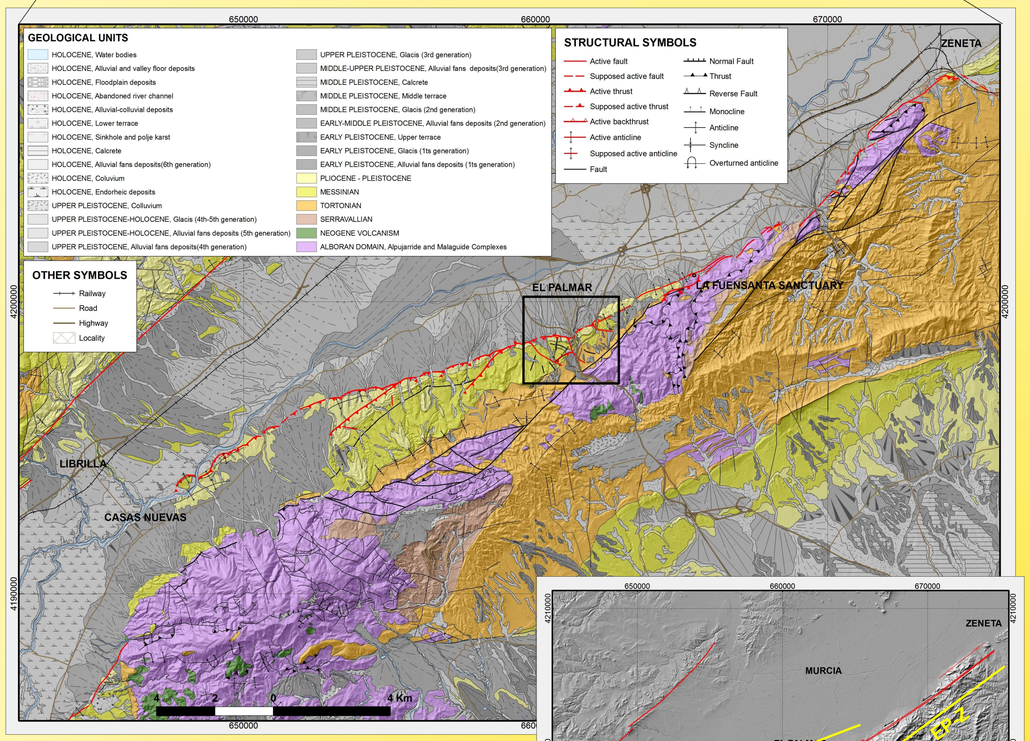
FAULT TRACE MAPPING



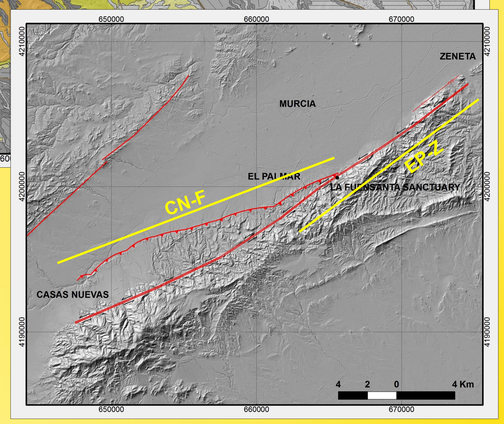
The Carrascoy Fault (CAF) is located in the Internal Zones of the Betic Cordillera (Southern Spain). It is one of the main faults forming the Eastern Betic Shear Zone (EBSZ), a major structure accommodating the convergence between Nubian and Eurasian plates at the westernmost part of the Mediterranean sea (Larouzière De et al., 1988; Silva et al., 1993).

So far, the CAF has been defined as a left-lateral strike-slip fault (Silva, 1994; Sanz de Galdeano et al., 1998). It trends NE-SW, controlling the northern front of the Carrascoy Range and, towards the west, the linkage to the Guadalentín Depression. This is an area of moderate seismic activity, but densely populated, the Murcia city, being settled very close to the fault. Hence, the knowledge of the structure and kinematics of the CAF is essential for a reliable assessment of the seismic hazard of the region.



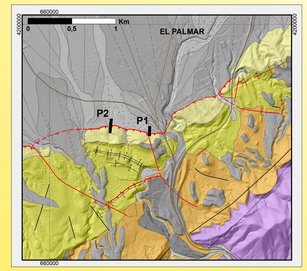
NEW SEGMENTATION OF CAF

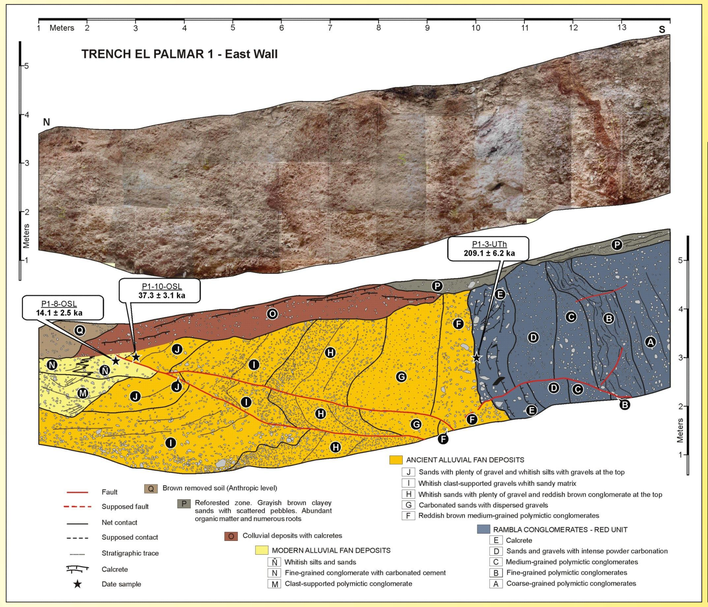
According to our studies, the fault can be divided into two **overlapping segments**: the western one: **CASAS NUEVAS – FUENSANTA (CN-F)**, and the eastern one: **EL PALMAR – ZENETA (EP-Z)**. The deformation in the CN-F segment clearly splits in two strands: North-Carrascoy (forming the northern border of the main relief) and a new formed strand located basinwards. This new strand shows a near pure reverse fault motion with associated folding.



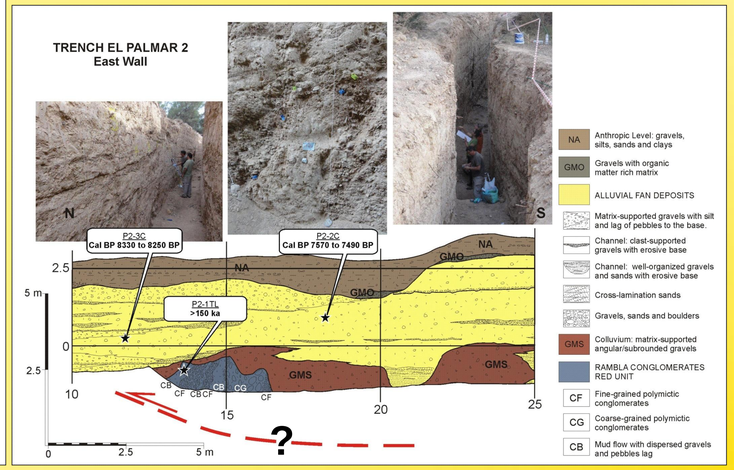
PALEOSEISMIC STUDY OF CN-F SEGMENT

Palmar-1 and **Palmar-2** are the names of two trenches dug across the CN-F segment. **Palmar-1 trench** intercepted the fault, showing its **reverse kinematics**. At least, **one paleoseismic event** was identified. The most recent deposits affected by the fault have been dated by **Optically Stimulated Luminescence (OSL)**.



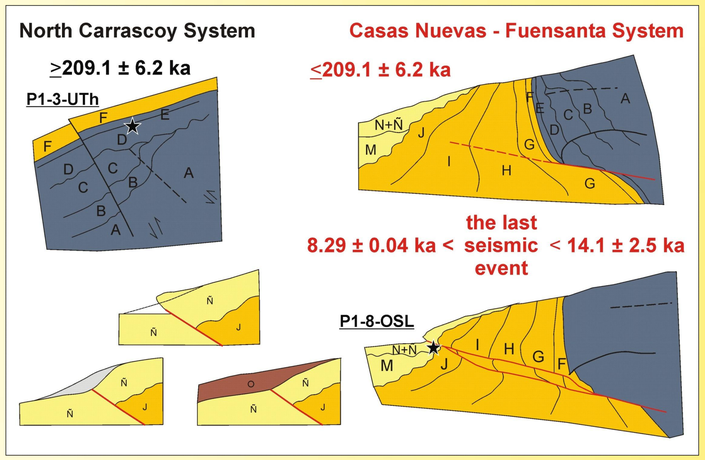


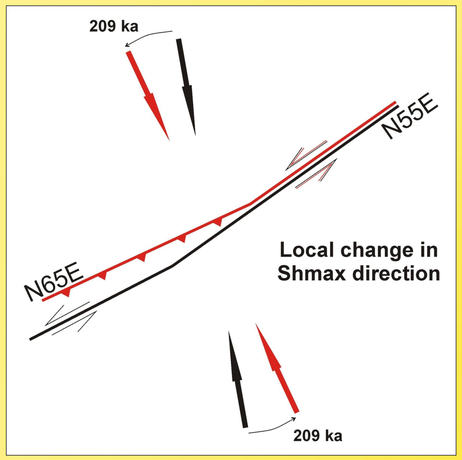
On the contrary, **no deformation** was observed in the youngest deposits excavated in the **Palmar-2 trench**. These deposits were **dated by radiocarbon** as old as **Cal BP 8330 to 8250**, **postdating the last seismic event**.



CONCLUSSIONS

▪ **Detailed geological and geomorphological mapping** suggest: **1. The division of CAF into two new segments** of different kinematics and geometry: **Casas Nuevas - Fuensanta** and **El Palmar - Zeneta.**





2. A local change in the maximum horizontal shortening direction, that progressively evolved from **NNW-SSE to NW-SE**, the former being responsible for the **sinistral strike-slip kinematics since Upper Tortonian** and the latter for an increase in the **reverse component** of the fault movement from **Middle-Upper Pleistocene times**.

▪ The paleoseismic study suggests that a change in Shmax occurred about 209 ka (upper part of the Middle Pleistocene), and that the last surface rupture event took place between 14.1 and 8.3 ka.

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